

USSR

UDC 632.4:582.282.112:633.11(477.54)

RODIGIN, M. N., and ATTIYA, M. F., Chair of Phytopathology, Kharkov Agricultural Institute.

"Specialization of Wheat Powdery Mildew Pathogen in Kharkov Oblast"

Leningrad, Mikologiya i Fitoratologiya, Vol 7, No 1, 1973, pp 39-40

Abstract: On the educational Communist Farm of the Kharkov Agricultural Institute, *Erysiphe graminis* DC. f. *tritici* March. inhabits wheat with the following frequency distribution: race 16 -- 25.01%; race 14 -- 19.44%; race 13 -- 16.67%; race 15 -- 13.89%; races 0 and 7 each -- 8.33%; race 33 -- 5.55%; and race 37 -- 2.78%. A specialization test performed on eight indicator plants and one control (Bezostaya 1, susceptible to all races) revealed that race 16 attacks Axminster, Hope, and Chul; race 14 -- Chul; race 13 -- Axminster and Chul; race 15 -- Axminster and Hope; race 7 -- Red Fern, Axminster, and Normandie; race 33 -- Red Fern, Axminster, Normandie, Hallenstamm 1341, Hope, and Chul; and race 37 -- Red Fern, Axminster, Normandie, Hallestamm 1341, and Weihestephan M1. Race 0 attacks none of the indicator plants. Indicator plant Salzmundestamm 14/44 is attacked by none of these races.

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UDC 543.544+632.954

ATURYAN, M. M., KATVALYAN, G. T., and DOVLATYAN, V. V., Armenian Agricultural Institute (Yerevan)

"Thin Layer Chromatography of Herbicides. Identification and Analysis of Crotyline, 2,4-D and Its Sodium Salt"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol XXIV, No 12, 1971, p 1085

Abstract: A study was made of the chromatographic behavior of crotyline on a thin layer of aluminum oxide. This offers the possibility of determining it in microamounts in different products and also of separating of the herbicide from the admixtures in the technical preparation: free 2,4-D and its sodium salt. The values of R_f of crotyline, 2,4-D and its sodium salt were measured in a series of solutions, in mixtures of acetone and water, acetone-water- NH_4OH , in different volumetric ratios. The complete text of the report (available at the All-Union Institute of Scientific and Technical Information, Registration No 3254-71, 9 August 1971) contains the data from these measurements. For analysis of the crotyline and 2,4-D mixture it is necessary to have neutral aluminum oxide; 2,4-D partially reacts with basic aluminum oxide to form a salt.

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ATURYAN. M. M., KATVALYAN, G. T., DOVLATYAN, V. V.

"Thin-Layer Chromatography of Herbicides, Identification and Analysis of Crotyline, 2, 4-D Acid and Its Sodium Salt"

Tonkosloynaya Khromatografiya Gerbitsidov, Identifikatsiya i Analiz Krotolina, 2,4-D Kisloty i Yeye Natriyevoy Soli. [English Version Above], Yerevan, 1971, 10 pages. (Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 4N695 Dep. by the authors).

Translation: Crotyline is produced as a herbicide on a commercial scale. A method of TLC is suggested for determination and identification of crotyline, 2, 4-D, the Na salt of 2, 4-D. The method suggested is sensitive, convenient and simple, can be used in the production of crotyline and for purity testing of the prepareate produced.

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Optical

USSR

SAPRYKIN, E. G., YUDIN, R. N., ATUTOV, S. N.

UDC 621.373.535

"Self-Mode-Selection of a 0.63 Micron Laser with Augmented Pressure in the Discharge Tube"

Leningrad, Optika i Spektroskopiya, Vol XXXIV, No 4, 1973, pp 755-761

Abstract: An experimental study was made of the spectral composition of the radiation of an He-Ne Laser ($\lambda = 0.63$ microns) with augmented pressure in the discharge tube. Powerful single-mode generation was obtained without using selection elements in the resonator. The generation conditions of the laser are described. With an increase in pressure the multimode generation becomes single mode. The power of the single mode generation can be half the maximum power of the laser. A study was made of several structural designs for the single mode lasers with pressure mode selection.

A plane-spherical resonator with a conical tube repeating the transverse field distribution of the resonator provided the most efficient suppression of the transverse modes. This made it possible to obtain the highest power in one mode. The various transverse modes are fed from spatially different groups of atoms, and the competing binding among them is attenuated. Thus, the single-mode regime begins at a higher pressure than in the case of modes of one type, and it has lower power. The conical tube repeating the configuration of the regulator field promotes the obtaining of one mode inasmuch as
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SAPRYKIN, E. G., et al., Optika i Spektroskopiya, Vol XXXIV, No 4, 1973, pp 755-761

the primary contribution to the amplification is made by the thin part of the tube, and the field effects in this part of the tube are greater. A large volume of gas in the entire tube promotes significant power. Thus, in the described laser with a plane-spherical resonator, in spite of the appreciably shorter length the single mode generation power was greater than in a laser with a symmetric spherical resonator. There was no necessity for suppressing the generation on the 3.39 micron transition.

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AA0043384

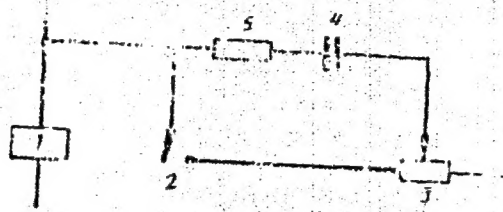
UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

242240 CONTROLLED TIME RELEASE OF A RELAY. A positive potential is applied to (Pusk) terminal, the winding (1) is energized and contact (2) of the additional relay is closed. Through the potentiometer (3) potential is applied to the capacitor (4). By removal of the positive potential contact (2) of the additional relay is open, and capacitor (4) is holding the winding (1) in energized condition. Release time is regulated by the potentiometer (3).

8.1.68 as 1208811/26-9. V. B. ATUARS (16.9.69) Bul 15/25.4.69. Class 21a³. Int. Cl. A 01h.

Рис. 1



19761655

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ELECTROCHEMICAL DEPOSITION OF A RUTHENIUM ALLOY -U-

AUTHOR--(02)-KADANER, L.I., AUAKYAN, R.B.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,056

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL PATENT, ELECTROCHEMICAL EFFECT, METAL DEPOSITION,
RUTHENIUM ALLOY, ELECTROLYTE, ELECTRODEPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1825

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AAC132090

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0132090

ABSTRACT/EXTRACT--(U) GP--0- ABSTRACT. AN RU ALLOY IS ELECTROCHEM.
DEPOSITED AT 15-40DEGREES AND CATHODE C.D. 3-9 A-DM PRIME2 FROM AN
ELECTROLYTE CONTG. RU 0.1-8, NICK SUB2 1-80, NH SUB4 CH 30-100, KCL
3.5-3.8, H SUB2 O SUB2 1-1.1 G-L., AND HCL TO PH 1.0-1.8.
FACILITY: KHAR'KOVSKIY GOSUDARSTVENNY PEDAGOGICHESKIY INSTITUT IM. G.
S. SKOVORODY.

UNCLASSIFIED

USSR

UDC 669.017:620.172

PRESNYAKOV, A. A., SOYMIN, N. YA., and AUBAKIROVA, R. K., Alma-Ata
"True Superplasticity"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 106-108

Abstract: The change in strength characteristics of Al-Zn eutectic alloy, type A-85 technical aluminum, and type S2 technical zinc during the process of extension was studied. Flow curves were constructed in the coordinates "flow stress -- elongation." Cylindrical specimens with a gauge portion diameter of 5×20 mm were held for 15 minutes at the experimental temperature, then subjected to tension directly in the furnace. With an elongation of about 110%, the deformation resistance drops to values of less than 0.025 kg/mm^2 . Further flow of the material occurs at strength levels too low to be measured by the available instruments. Analysis of the experimental material indicates that true superplastic flow is a rather common phenomenon

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PRESNYAKOV, A. A., et al., Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 106-108

during plastic deformation of metals and alloys. It is determined that the appearance and development of true superplastic flow of metals and alloys results from the influence of a significant number of factors, depending on which the phenomenon may occur or may not. The nature of development of true superplastic flow (the moment of its appearance and its duration) is determined by the effects of such factors as preliminary and present deformation experimental temperature, and other which facilitate its appearance.

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USSR

UDC 612.815.1+612.826

AYRAPET'YANTS, E. SH., AUBKOVA, B. A., and FIGURINA, I. I., Laboratory of Comparative Physiology of Internal Analysors, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences, USSR, Leningrad

"On the Role of Thalamic Structures in the Function of Visceral Analysors in Dogs"

Leningrad, Fiziologicheskii Zhurnal SSSR, imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1,158-1,167

Abstract: The retrograde degeneration of the thalamic nuclei of dogs was studied following removal of various areas of the visceral cortex. Conditioned reflexes of stomach and intestinal receptors were used as functional indicators of visceral analysor activity. It was observed that bilateral removal of the precoronary region caused the greatest degeneration in the ventral nucleus of the thalamus with other parts of the thalamo-cortical complex degenerating as well. This was accompanied by an immediate weakening of visceral afferent signals, with a resumption of visceral analysor activity in the second postoperative month. After removal of the postcoronary region of the cortex degeneration of the ventral and contralateral nuclei was noted. In this case visceral signals were disturbed for only 18 days. If the post-1/2

" USSR"

AYRAPET'YANTS, E. SH., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1,158-1,167

coronary region was removed with destruction of the white substance underlying the cortex, complete degeneration of the ventral nucleus and partial degeneration of the medial dorsal and central lateral nuclei were seen. However visceral conditioned reflexes were also reestablished in 3 weeks. These results were said to show that both the thalamus and the cortex have structures involved in transmission and analysis of visceromechanical conditioned signals, but that these are differently organized. The main link of the visceral cortex is considered indispensable for normal activity of the visceral analyzer.

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USSR

UDC 62.503.1

AUBOV, V. G., and SEMENISTYY, K. S.

"Some Design Characteristics of a Correcting Measurement Converter with Galvanic Division"

Otbor i peredach inform. Resp. mezhved sb. (Selection and Transmission of Information. Republic Interdepartmental Collection), 1972, No 33, pp 69 - 72 (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No 3 A309 by the authors)

Translation: The effects of the inertia and pulsation of the amplifying element are considered on the basis of the characteristics of a measuring system with series correction for the inertial qualities of the thermal sensor. The design characteristics of such systems, with galvanic division of the input and output circuits, are shown. Three illustrations, five bibliographic entries.

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1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SWITCHING EFFECT IN ANTIMONY TRISULFIDE SINGLE CRYSTALS -U-
AUTHOR--(03)-AUDZIONIS, A., GRIGAS, I., KARPUS, A.
COUNTRY OF INFO--USSR A
SOURCE--FIZ. TVERD. TELA 1970, 12(1), 146-50
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--SINGLE CRYSTAL, ELECTRIC FIELD EFFECT, THERMAL EFFECT,
ANTIMONY SULFIDE, SWITCHING THEORY, CHEMICAL REACTION KINETICS,
SEMICONDUCTOR MATERIAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0247 STEP NO--UR/0181/70/012/001/0146/0150
CIRC ACCESSION NO--AP0048526
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0048526

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER THE ACTION OF AN ELEC. FIELD, STOICHIOMETRIC NEEDLE LIKE SINGLE CRYSTALS OF Sb SUB2 S SUB3 SWITCH FROM THE HIGH OHMIC (H) STATE INTO THE LOW OHMIC (L) STATE. THE RESISTANCE OF THE L STATE IS 10^3 MINUS 10^4 FOLD LOWER THAN THE RESISTANCE OF THE H STATE. IN THE L STATE, METALLIC COND. IS PRESENT, WITH A TEMP. COEFF. OF RESISTANCE, β EQUALS $(3-7)$ TIMES 10^4 DEGREE AND IN THE H STATE, SEMICOND. IS PRESENT. THE ELEC. FIELD OF SWITCHING FROM THE H TO THE L STATE DEPENDS ON THE ELEC. COND. AND TEMP. OF THE CRYSTALS. THE EFFECT OF SWITCHING IS CLOSELY RELATED TO HEATING OF THE CRYSTAL AT THE MOMENT OF ACTION OF THE ELEC. FIELD. CRYSTALS SWITCHED FROM THE STABLE L TO THE H STATE RETURN UNDER THE ACTION OF A STRONG HIGH FREQUENCY OR MICROWAVE FIELD OR HEATING. THE KINETICS

WERE INVESTIGATED OF SWITCHING FROM THE L TO THE H STATE BY A STRONG MICROWAVE FIELD.

USSR

UDC 537.226+537:311.33+537+535

AUDZIONIS, A. I., KARPUS, A. S., Vil'nyus State Pedagogical Institute

"Influence of Electron-Phonon Interaction on the Optical Properties of Single Crystals of Antimony Trisulfide in the Near Infrared Region of the Spectrum"

Vil'nyus, Litovskiy Fizicheskiy Sbornik, Vol 13, No 5, 1973, pp 745-755

Abstract: It is shown that strong electron-phonon interaction exists in Sb_2S_3 single crystals. A study is made of the influence of this interaction on the optical properties of Sb_2S_3 crystals in the near infrared region of the spectrum. Anomalies of the coefficient of reflection (increase of reflection) and an extended absorption edge observed in Sb_2S_3 crystals in the region of 2-14 μm are explained by the interaction of light with polarons of small radius. The characteristic time of multiple-phonon processes is determined for Sb_2S_3 .

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USSR

UDC 621.394/.395:621.317

A
AUGUST, G. I., DAVUDOV, S. A., SEKNIN, V. G.

"Automatic Machine for Matrix Tests by a Statistical Method with Complex Analyzing Devices for Units of Communication Apparatus"

V sb. Metody razrab. radioelektron. apparatury, No 1 (Methods for Development of Radioelectronic Apparatus, No 1 -- Collection of Works), Moscow, 1970, pp 142-145 (from RZh--Elektrosvyaz', No 9, September 1970, Abstract No 9.64.17)

Translation: The paper reports on the development of an automatic machine for matrix tests by statistical methods, which is intended for the solution of a number of problems on the reliability of apparatus for long-distance service. A block diagram of the automatic machine and the analyzing devices is presented, a classification is given of the analyzing devices, and a list of the controlled parameters of analogous apparatus: individual equipment, grouped channel, generating equipment, power supply units and units of the pulse code modulation [IKM] system (parameters of pulses). Three illustrations. D. B.

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1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THEORY OF THE INELASTIC SCATTERING ON NEUTRONS BY DIATOMIC CRYSTALS
CONTAINING IMPURITIES --U-
AUTHOR--AUGST, G.R. A
CCOUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1311-16
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MODEL, NEUTRON SCATTERING, CRYSTAL IMPURITY, INELASTIC
SCATTERING, DIFFERENTIAL CROSS SECTION, GREEN FUNCTION
CENTREL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/0923 STEP NO--UR/0181/70/012/005/1311/1316
CIRC ACCESSION NO--AP0131509
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131509

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. BY USING THE TECHNIQUE OF RETARDING GREEN FUNCTIONS, EXPRESSIONS WERE OBTAINED FOR COHERENT AND INCOHERENT DIFFERENTIAL CROSS SECTIONS OF NEUTRON INELASTIC SCATTERING ON DIAT. CRYSTALS OF CUBIC SYMMETRY CONTG. A SMALL CONC. OF IMPURITIES. THE PROBLEM IS SOLVED WITHOUT ACCOUNTING FOR THE VARIATION OF THE FORCE CONSTS. THE POSSIBILITY OF LIFTING THE DEGENERACY AT THE INTERSECTION OF PHONON BRANCHES AS A RESULT OF THE INTRODUCTION OF IMPURITIES WAS CONSIDERED. VARIATION OF THE FORCE CONSTS. WAS ACCOUNTED FOR BY USING A MODEL WHICH CONSIDERS THE INTERACTION OF NEAREST NEIGHBOURS. FACILITY: INST. FIZ., TBILISI, USSR.

UNCLASSIFIED

USSR/HUNGARY

AUJESZKY, Laszlo [affiliation not given].

"Electric Charge Accumulation in Aircraft in Clouds and Precipitation Zones"

Budapest, Idojaras, Vol 77, No 4, Jul-Aug 1973, p 244

Abstract: The author reviews the book by IMYANITOV, I. M. entitled (Elektrizatsiya Samoletov v Oblakakh i Osadkakh), published by Gidrometeoizdat, Leningrad, USSR in 1970 (146 pages). This monograph (translated title: Electric Accumulation in Aircraft in Clouds and Precipitation Zones) deals with a very interesting and highly important aspect of flight meteorology. As the aircraft passes through clouds or precipitation zones, potentials sometimes exceeding one million volts may be generated in spite of measures designed to prevent the accumulation of static electricity. Corona discharges and sometimes even spark discharges may develop on the aircraft body; this for all practical purposes transforms the aircraft into an electric generator with an output of several kilowatts in some instances. These phenomena interfere with the operation of the radio equipment aboard and sometimes entirely disrupt communications with the ground. Static charge accumulation sometimes is the precursor of an even more dangerous phenomenon: lightning development. In some cases the aerodynamic characteristics of the aircraft are perturbed also. In the case

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USSR/HUNGARY

AUJESZKY, Laszlo, Idojaras, Vol 77, No 4, Jul-Aug 1973, p 244

where the aircraft is used for meteorological research or other kinds of research, accumulation of static electricity interferes with the readings of the instruments aboard. The subject of static electricity accumulation on aircraft has a large literature, but there is much contradiction among the authors. For this reason, the appearance of this monograph, which summarizes and presents in a unified manner this complex subject, is welcome. [review translated in full].

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1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--MEASUREMENT OF LONG NUCLEAR SPIN LATTICE RELAXATION TIMES -U-
AUTHOR-(02)-AUKHADEYEV, F.L., KOREPANOV, V.D.
COUNTRY OF INFO--USSR *A*
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 155-6
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SPIN LATTICE RELAXATION, NMR SPECTRUM, RF PULSE, CALCULATION,
FLUORINE, CALCIUM FLUORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1889 STEP NO--UR/0120/70/001/000/0155/0156
CIRC ACCESSION NO--AP0108219
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108219

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LONG DURATION T SUB1 IN NMR CAN BE MEASURED BY A SEQUENCE OF RADIO FREQUENCY PULSES WITH A DURATION DIFFERENT FROM THE 90DEGREES ONE. THE METHOD DOES NOT REQUIRE THE MEASUREMENT OF THE SIGNAL PROPORTIONAL TO EQUIL. MAGNETIC INTENSITY BUT MAKES IT POSSIBLE TO CALC. IT. A FORMULA IS DERIVED FOR CALC. OF T SUB1 ACCORDING TO SIGNALS OF FREE INDUCTION. THE METHOD WAS USED TO MEASURE T SUB1 OF NUCLEI OF PRIME19 F AND CAF SUB2 AT 1.5DEGREEESK LASTING ALMOST 800 SEC.

FACILITY: KAZAN. GOS. UNIV., KAZAN, USSR.

UNCLASSIFIED

USSR

A UDC: 621.372.85

VAYTEKUNAS, F. K., AULAS, A. A., GERASIMAVICHYUS, V. V.

"Some Elements of Continuously Controllable Ultrawide-Band Delay Lines"

V sb. Radioelektronika. T. 5 (Radio Electronics--collection of works, Vol 5),
Kaunas, 1969, pp 353-356 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6B210)

Translation: The authors give the results of an experimental investigation of the
rotating coupling, load and slip ring of helical delay lines in the 0.5-3 GHz
range. Six illustrations, bibliography of three titles. A. K.

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1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--DETERMINATION OF MOLYBDENUM AND ZINC IN FERTILIZERS AND PHOSPHATE
RAW MATERIAL -U-
AUTHOR--(03)-NABIYEVA, M.M., KHAKIMOVA, V.K., AULESHEVA, M.
COUNTRY OF INFO--USSR
SOURCE--UZB. KHIM. ZH. 1970, 14(1), 6-7
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, CHEMISTRY
TOPIC TAGS--FERTILIZER, CHEMICAL ANALYSIS, MOLYBDENUM, POLAROGRAPHIC
ANALYSIS, ZINC, COLORIMETRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0005 STEP NO--UR/0291/70/014/001/0006/0007
CIRC ACCESSION NO--AP0137204
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV76

CIRC ACCESSION NO--AP0137204

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF MO IN FERTILIZERS WAS DETD. POLAROGRAPHICALLY, AFTER REMOVING THE INTERFERING ELEMENTS FR, IN, V, ETC., BY TREATING THE SAMPLES WITH MINERAL ACIDS AND IONEX COLUMNS. ZN WAS DETD. COLORIMETRICALLY. VARIOUS FERTILIZERS CONTAINED 0.04-1.04 TIMES 10 PRIME NEGATIVE3 PERCENT MO AND 0.5-6.0 TIMES 10 PRIME NEGATIVE3 PERCENT ZN. FACILITY: INST. KHIM., TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 681.3

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BORKOVSKIY, B. A., VOLLERNER, A. N., KATKOV, A. F., AULIK, M. N., ROMANTSOV, V. P.,
TYUTIN, A. A.

"Modeling Mathematical Machines with Variable Structure"

Modeliruyushchiye Matematicheskiye Mashiny S Peremennoy Strukturoy, [English
Version Above], Kiev, Nauk. Dumka Press, 1970, 248 pages, (Translated from
Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V602 K, unsigned).

Translation: Results are presented from theoretical studies of models with
variable structure, designed for modeling of mathematical operations, systems
of finite equations and linear differential equations. Significant attention
is given to methods of studying models with variable structure and recommenda-
tions are given for their engineering planning. The book is designed for
engineers, scientific workers and graduate students interested in electronic
modeling.

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172 024 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--INFRARED SPECTRA OF AMMONIA ADSORBED ON FLUORINATED ALUMINUM OXIDE
AND ALUMINUM HYDROXIDE FLUORIDE -U-
AUTHOR-(03)-BULGAKOV, O.V., UVAROV, A.V., AUTIPINA, T.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 17-22
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALUMINUM HYDROXIDE, IR SPECTRUM, GAS ADSORPTION, FLUORIDE,
AMMONIA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY KEEL/FRAME--1993/0290 STEP NO--UR/0075/70/044/001/0017/0022
CIRC ACCESSION NO--AP0113220
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113220

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF NH SUB3 ADSORBED ON AL SUB2 O SUB3 (I), FLUORINATED AL SUB2 O SUB3 (II) (6.4 AT.PERCENT F), AND CATALYTICALLY ACTIVE AL HYDROXIDE FLUORIDE (III) (28.6 WT.PERCENT F) WERE STUDIED. SPECTRA OF I-III AFTER DESORPTION AT ROOM TEMP., 150, 250, 350, AND 550DEGREES ARE REPRODUCED. ABSORPTION BANDS OF COORDINATELY BONDED NH SUB3 WERE FOUND ON THE SURFACE OF ALL SAMPLES, AND BANDS OF NH SUB4 POSITIVE WERE PRESENT IN THE SPECTRA OF II AND III. I SAMPLES WERE FLUORINATED BY A PUBLISHED METHOD (CA 69, 30509 Q). THE IR STUDY SHOWED THE PRESENCE OF APROTIC ACIDIC CENTERS ON THE SURFACE OF I AND BOTH TYPES ON THE SURFACES II AND III. ADSORBED NH SUB3 BANDS OCCURRED AT 3100, 1580, 1550, 1497, AND 1455 CM NEGATIVE PRIME1, INDICATING THE INSTABILITY OF ADSORBED NH SUB3 MOLS. AND A POSSIBILITY OF THEIR REARRANGEMENT INTO DIFFERENT SURFACE FORMS. THE BANDS AT 1456 AND 1497 CM NEGATIVE PRIME1 WERE ATTRIBUTED (J. B. PERI, 1965) TO DEFORMATION VIBRATIONS OF NH SUB2 NEGATIVE, BUT THE PRESENT STUDY REVEALED NO ADDNL. BANDS IN THE REGION OF THE OH VALENCE VIBRATIONS TO SUPPORT THE REACTION NH SUB3 PLUS O PRIME2 NEGATIVE YIELDS NH SUB2 NEGATIVE PLUS OH NEGATIVE. IF, INDEED THESE BANDS ARE CAUSED BY DEFORMATION VIBRATIONS OF NH SUB2 NEGATIVE, THE MECHANISM FOR THE FORMATION OF NH SUB2 NEGATIVE IS DIFFERENT FROM THAT EXPECTED. THE APPEARANCE OF THE 3100-CM NEGATIVE PRIME1 BAND IS ATTRIBUTED TO THE INTERACTION OF NH SUB3 WITH THE SURFACE IONS OF AL PRIME3 POSITIVE, GIVING RISE TO NH SUB3 POSITIVE, WITH DEFORMATION VIBRATIONS AT 1580 CM NEGATIVE PRIME1.

FACILITY: UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 681.128.3

AUZHBKOVCIH, A. M., DMITRIYEV, S. P., ZARITSKIY, V. S., Leningrad Institute of Aviation Instrument Building

"A Two-Component Fuel Gauge"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, Mar 73, Author's Certificate No 367345, Division G, filed 14 Jun 71, published 23 Jan 73, p 111

Translation: This Author's Certificate introduces a two-component fuel gauge containing a fuel-metering tank, a vaned-wheel flowmeter, a comparator, a computer device based on functional modules, and an indicator. As a distinguishing feature of the patent, measurement accuracy is improved by connecting the integrator in the computer device through an inertial link to the fuel-meter signal comparator. The output of the comparator is connected through a correcting link to one of the outputs of an adder in the computer device. The fuel meter and flowmeter are connected to the inputs of the comparator and adder respectively.

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1/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ETHYLENIC AND ACETYLENIC KETONES AS DIFNOPHILES IN CATALYTIC DIENE
SYNTHESIS -U-
AUTHOR-(03)-FAVORSKAYA, I.A.; AUVINEN, E.M.; PRILUTSKAYA, G.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 720-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALIPHATIC KETONE, CATALYTIC ORGANIC SYNTHESIS, DIENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1963 STEP NO--UR/0366/70/006/004/0720/0723
CIRC ACCESSION NO--AP0125552
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIELS ALDER REACTIONS OF H
SUB2 C:CMECH:CH SUB2 (I) WITH ETCCH:CHME, ET 1,CYCLOHEXENYL KETONE, ET
1,CYCLOPENTENYL KETONE, ACCH:CHPH, OR PHCOCH:CHME REQUIRES ONLY
CATALYTIC AMTS. OF BF SUB3.ET SUB2 O (II). HOWEVER, TO CONDENSE I WITH
PRCOC TRIPLE BOND CH OR BZC TRIPLE BOND CME 1 EQUIV. OF II IS REQUIRED.
THE LOWER REACTIVITY OF THESE ACETYLENIC KETONES IS DUE TO THEIR LOWER
BASICITY (THAN THAT OF ETHYLENIC KETONES) AND THE RELATIVELY WEAK
AFFINITY TOWARDS II. FACILITY: Leningrad. Gos. Univ. IN.
ZHOANOVA, Leningrad, USSR.

UNCLASSIFIED

USSR

UDC 669.71.008

AUZIN', O. A.

"Power Economy in Aluminum Production"

Sb. materialov Vses. seminarov energetikov predpriyatiy tsvetn. metallurgii po ekon. elektroenergii (All-Union Seminar of Electrical Engineers of the Enterprises of Non-ferrous Metallurgy on the Question of Economizing on Electrical Power -- collection of transactions), Moscow, 1970, pp 163-174 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G95)

Translation: At the Ural Aluminum Plant the plotting of the balance of voltage from the electrolytic reduction cell at 62,000 amp produced the following results: (first number is in volts and the second in % of total): a drop in voltage on non-heating sections 0.588 and 12.3, electrochemical 1.7 and 36, subsequently of anode effects of 0.083 and 1.7, on heating sections 0.532 and 11, in electrolyte 1.7 and 36, and in anode 0.145 and 3. A detailed review of the theoretically necessary power consumption and a list of recommendations for the reduction of power consumption are presented.

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USSR

UDC 577.4

AUZIN', P. K.

"Determining the Parameters of a Failure Classifier"

V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works), Moscow, Nauka Press, 1972, pp 346-348 (from RZh-Kibernetika), No 7, Jul 72, Abstract No 7V419)

No abstract

1/1

USSR

UDC 51.155.001.57.612.82

AUZIN', P. K., LYASHENKO, T. V.

"Synthesis of Threshold Elements by the Method of Minimization of a Functional"

Kibernetika i Diagnostika [Cybernetics and Diagnosis - - Collection of Works], No. 4, Riga, 1970, pp 43-53. (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V725 by the author).

Translation: Two algorithms for synthesis of threshold elements (TE) are studied. The first algorithm is based on minimization of the functional by the method of coordinate-by-coordinate descent, but involves great expenses for search for the direction of motion. In order to decrease costs, in the second algorithm a derivative functional is determined, providing the necessary information concerning the direction of motion toward the minimum. The algorithms allow the minimum structure of the TE to be produced, which is quite important with a large number of variables, to produce the physical realization of the TE. An example of the application of algorithms and a block diagram of the program for determination of TE parameters by computer are presented.

1/1

- 70 -

USSR

UDC 51:155.001.57:681.3.06

AUZIN', P. K.

"Preliminary Training of a Classifier for Defects in Complex Technical Objects"

Kibernetika i Diagnostika [Cybernetics and Diagnosis -- Collection of Works], No 4, Riga, Zinatne Press, 1970, pp 157-164. (Translated from Refertivnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V585 by the author).

Translation: A method is suggested for preliminary teaching of a classifier using threshold elements. It is demonstrated that the process of preliminary teaching consists of determination of the parameters of the threshold element. One necessary condition for this is enscription of the subset of characteristics describing one defect in the form of Boolean functions. This work suggests a method for composing Boolean functions and determining the area of their solution. The area of solution determines the dividing plane of two classes: defects present or absent. 14 biblio refs.

1/1

USSR

UDC: 533.09.07

AUZINYA, L. K., ZAKE, M. V., MEL'NIKOV, V. K., and TSIYELENS, U. A.

"Phenomena of Emission from a Titanium Surface in Nonstationary Heating by an Argon-Air Current of a Low-Temperature Plasma"

Riga, Izvestiya Akademii Nauk Latvyskoy SSR -- Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 4, 1973, pp 53-62

Abstract: Earlier papers by the authors of the present article (e.g., M. V. Zake, et al, Izv. AN LatvSSR, ser. fiz. i tekhn. nauk, No 2, 1970, p 81) have established that the electrical conductivity and radiation characteristics of high-temperature, gas-dispersed currents with titanium particles are determined chiefly by the phase and chemical transformations of the particles. Since there is a need for more detailed study of the mechanisms involved, the processes are studied in the present paper on stationary models under low-temperature plasma conditions. The results are given of a combined study of electron emission and radiation from the surface of titanium plates under nonstationary heating by an argon-air current of a low-temperature plasma. For these experiments, a special measuring device was prepared, consisting basically of plane-parallel electrodes, with the titanium plate as cathode and a
1/2

- 43 -

USSR

UDC: 533.09.07

AUZINYA, L. K., et al, Izvestiya Akademii Nauk Latviyskoy SSR --
Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 4, 1973, pp 53-62

water-cooled copper plate as anode. Curves are plotted for the change in intensity of radiation from the surface of the titanium as a function of the heating time and of the temperature, for the changes in emission current as a function of the temperature, and for the work function of the surface as a function of the temperature. The results of the work function determination show that the kinetic emission at various stages of surface oxide formation must not be neglected in computations of the electrical characteristics of sputtering currents with metal particles.

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USSR

UDC: 533.09.07

AUZINYA, L. K., LIYEPINYA, V. E., ZAKE, M. V., MEL'NIKOV, V. K.,
MEL'NIKOV, VI. E., UNGURS, I. A., and TSIYELENS, U. A.

"Method of Complex Experimental Investigations of Thermophysical Processes in a Chemically Active Coaxial Plasma Jet With Ti Particles"

Riga, Izvestiya Akademii nauk Latvyskoy SSR, No 2, 1972, pp 60-68

Abstract: Very little attention is now being given to low-temperature plasma jets with dispersed particles. Consequently, the purpose of this paper is to give the results of complex experimental investigations into the coaxial jet of a low-temperature argon plasma with dispersed particles of Ti. Measurements are made of the gas-dynamic parameters of a single-phase jet, variations in the chemical composition of the dispersed particles from the characteristics of the two-phased jet are studied, the spectral and integral characteristics of energy losses through radiation are obtained, and the electrical conductivity of the jet flux is investigated. The experimental equipment, a diagram of which is given, consists of arc heaters, a coaxial nozzle, a device for introducing powders into the jet, and measuring instruments. Of the features of these experiments,

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UDC: 533.09.07

AUZINYA, L. K., et al, Izvestiya Akademii nauk Latvyskoy SSR,
No w, 1972, pp 60-68

the most interesting is the chemical conversion of the Ti into
compounds containing large quantities of nitrogen in the form of
nitrides and oxynitrides.

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- 113 -

So: JPRS 59610
25 JULY 1973

3

COMPRESSIVE STRENGTH AND DEFORMATION PROPERTIES OF CARBON-FIBER REINFORCED PLASTICS
UDC 678.5.06.539.4.011

Article by Ye. V. Auzukalns, F. Ya. Bulovs, G. N. Gulyayev, Polymer Mechanics Institute of the Latvian SSR Academy of Sciences, Riga; A. M. Melnikova, Polysarom, Moscow, No 1, 1973, submitted 25 April 1972, pp 29-35

An experimental study was made of the deformational and strength characteristics of unidirectionally carbon-fiber reinforced plastic under uniaxial compression in the longitudinal and transverse directions and at an angle of 45 degrees to the direction of reinforcement both during short-term and prolonged tests. On the basis of the deformational properties of the components, an effort was made to describe the stress curves of the plastic in all three loading directions. When forecasting the compressive strength in the direction of the reinforcing and transverse to the reinforcing, the Mohr theory was used. There are three tables, five illustrations and a five-entry bibliography.

Carbon-fiber reinforced plastics are a prospective form of composite material. The mechanical properties of these composite materials have still been investigated extremely inadequately. It turns out that the use of carbon-fibers as the reinforcement does not lead to a proportional change in all the mechanical characteristics of the plastic by compression, for example, with fibers.

The purpose of this paper is to study a number of mechanical properties of unidirectionally carbon-fiber reinforced plastics in the presence of compression both under short-term and prolonged loads.

For the experimental study of the deformational properties of the carbon-fiber reinforced plastic, prismatic specimens were prepared 50 mm long with transverse dimensions of 7 x 15 and 5 x 15 mm. Resistance sensors were glued to both lateral surfaces of the specimens in the direction of effect of the load and perpendicular to it. The deformations were measured by the TA-2 electromechanical strain gages and using the 1516 type strain gages built by the Brown and Kerr Company.

In order to determine the deformation characteristics in the presence of compression perpendicular to the direction of the reinforcing and at an angle of 45 degrees to the direction of reinforcing, the specimens were loaded in an all-purpose PM-1000 tester to 400 kilogram-force/cm². In order to determine the deformation characteristics under compression in the direction of the reinforcing, the specimens were loaded to 900 kilogram-force/cm².

The results of studying the Young's modulus of unidirectionally carbon-fiber reinforced plastic in the direction of the reinforcing (E_1), perpendicular to the direction of the reinforcing (E_2) and at an angle of 45 degrees with respect to the direction of reinforcing (E_3) and the values of the Poisson coefficient ν_{21} are presented in Table 1 where each of the deformation characteristics is defined by the results of testing three specimens. The theoretical values of the moduli calculated by the formulas presented in reference [1] are also presented in this table.

Table 1
Comparison of the experimental and theoretical values of the Young's modulus and Poisson coefficient

ϕ	$E_1 \cdot 10^{-6}$ kg-force/ cm ²		$E_2 \cdot 10^{-6}$ kg-force/ cm ²		$E_3 \cdot 10^{-6}$ kg-force/ cm ²		ν_{21}	
	Exp.	Theor.	Exp.	Theor.	Exp.	Theor.	Exp.	Theor.
0°	0.713	0.713	0.019	0.019	0.004	0.004	0.300	0.300
45°	0.449	0.449	0.010	0.010	0.003	0.003	0.300	0.300
90°	0.210	0.210	0.005	0.005	0.002	0.002	0.300	0.300

Note. The specimen dimensions were $50 \times 15 \times 7$ and $50 \times 15 \times 9$ mm. The binder was epoxy resin. When calculating the theoretical values of the moduli by the formulas of reference [1], the elastic characteristics of the moduli by the isotropic carbon-fiber were the following: $E_1 = 3 \cdot 10^6$ kg-force/cm²; $E_2 = 0.019 \cdot 10^6$ kg-force/cm²; $\nu_{21} = 0.25$.

The characteristic diagrams of the deformation of the carbon-fiber reinforced plastic during uniform loading to rupture are illustrated in Figure 1. In order to estimate the effect of the time factor on the deformational properties of the carbon-reinforced plastics, the specimens were creep tested for two loading levels amounting to 0.3 and 0.6 of the short-term compressive strength. The temperature of the experiments was $20 \pm 1^\circ\text{C}$. The experimental results are shown in Figure 2.

AP0018761- INTERNAT. AEROSPACE ABST. 2/78 UR0170

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A70-13518 #

HEAT TRANSFER BETWEEN A FLAT PLATE WITH AN UN-
STEADY SURFACE TEMPERATURE IN A LAMINAR FLUID
FLOW (TEPLOOBMEN MEZH DU PLOSKOI PLASTINOI S
NESTATSIONARNOI TEMPERATUROI POVERKHNOSTI I
LAMINARNO OBTEKAIUSHCHIM EE POTOKOM ZHIDKOSTI),
G. I. Pavlovskii and M. M. A. Avad (Khar'kovskii Politekhnikeskii
Institut, Kharkov, Ukrainian SSR).

Inzhenerno-Fizicheskii Zhurnal, vol. 17, Sept. 1969, p. 499-505, 9
refs. In Russian.

Analysis of the heat transfer under conditions of forced
convection from a flat plate in a laminar flow where the plate
temperature is an arbitrary function of time. First, a case is

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considered where the surface temperature changes abruptly and the initial temperatures of the plate surface and the fluid are the same. The problem is solved by an integral method, and a formula for the heat flux is derived. It is shown that the heat flux can be described by the solution to the problem of one-dimensional heat conduction up to a certain moment of time, after which a solution corresponding to steady-state heat transfer should be used for the heat flux. Then

the solution is generalized to the case where the plate surface temperature varies arbitrarily in time. Finally, a case is considered where the plate surface temperature varies arbitrarily in time but the initial temperatures of the plate surface and fluid are not equal—i.e., steady-state heat transfer occurs at the start.

Z.W.

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243911 HYDRAULIC POWERMETER contains a flexible sensitive element, transformer-hydraulic collector of the measured power and an automatic recorder. The hydraulic collector is made up of separate membrane chambers connected with each other co-axially and connected to a pipe line in any combination of pipes.

2/70

The device contains a hydraulic collector 1 in the form of separate chambers 2 co-axially joined and transformer 3 of power in the form of a hydraulic dynamometer, a flexible sensitive element 4 spiral and a self-recording device 5, recording a diagram of load-time.

1.4.67 as 1146245/18-10.S.B.TER-AKOPOV et al.
(26.9.69) Bul 17/14.5.69. Class 42k. Int.Cl.G.01 L.

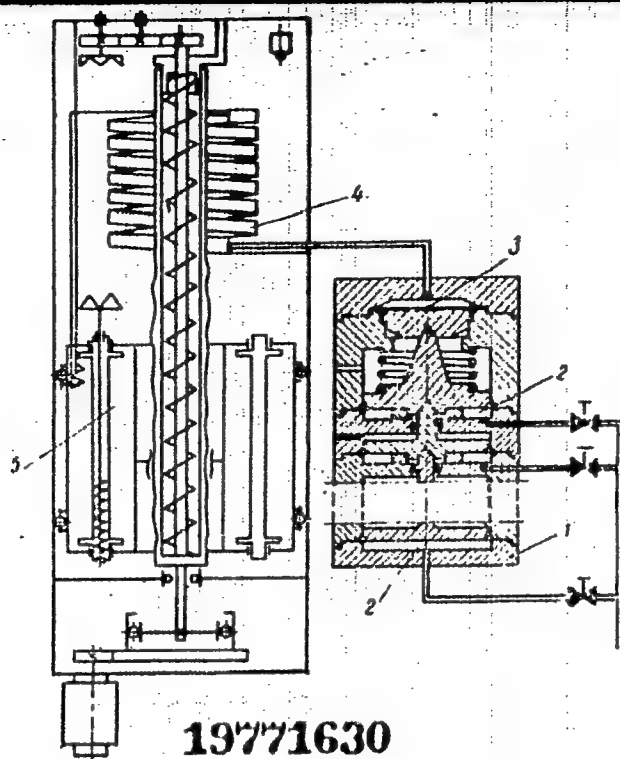
18

AUTHORS: Ter-Akopov, S. B.; Avad'yev, B. V.; Nasibov, Sh. G.

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AA0044799



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Acc. Nr.: AF 0042604

Ref. Code: HR0000

[USSR

UDC 621.395 JPRS 5248

AVAKOV, R. A., ZHDANOV, I. M., PODVIDZ, M. M. and SHILOV, O. S.

"Principles of Telephony and Theory of Telephone Traffic. Text-book for Electrical Engineering Institutes of Communications"

Osnovy telefonii i teorii telefonnykh soobshcheniy. Uchebnik dlya elektrotekhn. in-tov svyazi. (cf English above), Moscow, "Svyaz", 1969. 304 p, ill. 84 k. (from RZh-Elektrosvyaz', No 1, Jan 70, Abstract No 1.64.64K)

Translation: The principles of telephone transmission are considered including telephone apparatus and its elements, switching devices (electromagnetic, relay, electromechanical selectors, crossbar connectors and noncontact switching elements), procedures for an appraisal of the quality of telephone transmission, and calculation of telephone load and losses of messages. The principle of telephone switching are given including the basic structure and group formation of automatic telephone stations of cross-

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bar tem-step, mechanical -- electronic, and electronic systems, and the principles of the structure of urban telephone communication networks. The textbook is designed for students of electrical engineering in higher educational institutions of communications and also for a wide range of specialists in the field of telephony. 139 illustration, 20 tables and 28 references.

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USSR

UDC 621.395

 AVAKOV, R. A., ZHDANOV, I. M., PODVIDZ, M. M. and SHILOV, O. S.

"Principles of Telephony and Theory of Telephone Traffic. Textbook for Electrical Engineering Institutes of Communications"

Osnovy telefonii i teorii telefonnykh soobshcheniy. Uchebnik dlya elektrotekhn. in-tov svyazi. (cf English above), Moscow, "Svyaz", 1969. 304 p, ill. 84 k. (from RZh-Elektrosvyaz', No 1, Jan 70, Abstract No 1.64.64K)

Translation: The principles of telephone transmission are considered including telephone apparatus and its elements, switching devices (electromagnetic, relay, electromechanical selectors, crossbar connectors and noncontact switching elements), procedures for an appraisal of the quality of telephone transmission, and calculation of telephone load and losses of messages. The principle of telephone switching are given including the basic structure and group formation of automatic telephone stations of crossbar tem-step, mechanical -- electronic, and electronic systems, and the principles of the structure of urban telephone communication networks. The textbook is designed for students of electrical engineering in higher educational institutions of communications and also for a wide range of specialists in the field of telephony. 139 illustration, 20 tables and 28 references.

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USSR

UDC 576.895.4

KOCHKAREVA, A. V., ZAGNIBORODOVA, Ye. N., ZHERNOVOV, I. V., ZAYTSEVA, V. I.,
SHILENKO, V. I., ZABEGALOVA, M. N., AVAKOV, S. M., TASHLIYEV, A. O., BEL'SKAYA,
G. S., and VAZHEV, A. P., Republic Anti plague Station, Institute of Zoology,
Academy of Sciences Turkmen SSR.

"Regional Distribution of Ixodid Ticks in Turkmenia"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskikh
Nauk, No 5, 1971, pp 36-42

Abstract: The 31 species and subspecies of Ixodid ticks (of the total of 49
living in Turkmenia) gathered from 699 geographic points and included in the
collection of the station are analyzed for the distribution of their natural
habitats and their geological and botanic living conditions. *Hyalomma*
asiaticum *asiaticum* proliferates in large numbers in all four regions (clay
desert, sandy desert, cultivated river valleys, and southern mountains).
H. detritum an. *anatolicum*, *H. an. excavatum*, and *H. pl. plumbeum* thrive
mainly in cultivated areas. The most numerous species are *H. as. asiaticum*
and *H. numidiana turanica* living in sandy desert and *Ornithodoros tartakovskyi*
living in clay desert. *Ixodes redikorzevi*, *Haemaphysalis punctata*, *Rhipi-*
cephalus schulzei, and *R. leporis* were recorded for the first time in the
republic.

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1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--INFLUENCE OF THE STRUCTURE AND DEGREE OF DISPERSION OF FELDSPAR
SANDS ON SOME PROPERTIES OF HARDENED CEMENT OF LINESAND CONCRETES -U-
AUTHOR--(02)-VINOGRADOV, B.N., AVAKOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK TURKM. SSR, SER. FIZ.--TEKH., KHIM. GEOL. NAUK
1970, (1), 41-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--CEMENT, QUARTZ, CHEMICAL COMPOSITION, HARDNESS, MINERAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0730 STEP NO--UR/0202/70/000/001/0041/0046
CIRC ACCESSION NO--AP0113594
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113594

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SILICEOUS COARSELY DIMENSIONAL INDUSTRIAL PRODUCTS COULD BE OBTAINED ONLY FROM QUARTZ SANDS, CONTG. NOT MORE THAN 10-15PERCENT MINERALS OF THE FELDSPAR GROUP. WITH AN INCREASE OF ALK. MINERAL THERE IS DETERIORATION IN PHYS. CHEM. PROPERTIES OF CEMENTING MATERIAL AND ALSO IN ITS STABILITY. FOR THE STUDY, 4 ALK. MINERALS WERE SELECTED: NEPHELINE, ALBITE, MICROLITE, AND DAMOURITE WITH ADDN. OF QUARTZ. THE CHEM. COMPN. OF THE ABOVE MINERALS IS GIVEN. SAMPLES WERE PREPD. CONTG. CA(OH) SUB2 40, CASO SUB4.2H SUB2 O, AND SILICEOUS COMPONENT 55PERCENT. THE RATIO OF QUARTZ TO ALK. MINERAL IN THE SILICEOUS COMPONENT WAS USED IN THE RATIO OF 3:1, 1:1, 1:3 AND 0:1 BY WT.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

A

UDC: 615.78

AVAKUMOV, V.M., Candidate of Medical Sciences

"Metabolism of Neurotropic Substances (Hypnotics, Psychostimulants, Tranquilizers, Antidepressants)"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D.I. Mendeleeva
Vol 15, No 2, 1970, pp 164-174

Abstract: Neurotropics are metabolized by oxidation, reduction, hydrolysis and synthesis. Oxidation is most common with barbiturate hypnotics; their inactive metabolites are rapidly eliminated through the kidney. Phenobarbital, a long-lasting hypnotic and anticonvulsant, is metabolized to its analogues, which are slowly eliminated. The derivatives of phenylalkylamine stimulate the CNS. Their deaminated metabolites react with glucuronic acid and are readily excreted. One product, phenamine, increases blood pressure, but at the same time loses its CNS activity. The metabolites formed by oxidation and reaction with glucuronic acid of meprotan, a tranquilizer, do not penetrate the blood-brain barrier, but readily pass through the kidney. The major tranquilizers, phenothiazines (aminazine), undergo a variety of biotransformations which account for multiple side effects. Monomethylaminazine is a particularly active metabolite; the other aminazine metabolites become inactive. The antidepressants, iprazid and imizin, inhibit monoamino oxidase activity and

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USSR

AVAKUMOV, V.M., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D.I. Mendeleeva, Vol 15, No 2, 1970, pp 164-174

increase the level of catecholamines in the brain. Unlike iprizid, which has uniform activity, imizin acts selectively only on the depressed. Bio-transformation in this group is similar to that of the phenothiazides, except that N-demethylation of imizin produces a more active metabolite.

2/2

1/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--COMPARATIVE CHARACTERISTICS OF CHLORPROMAZINE AND CHLORACIZIN
DISTRIBUTION IN RATS -U-
AUTHOR-(02)-AVAKUMOV, V.M., BATULIN, YU.M. *A*
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 14-17
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHLORPROMAZINE, RAT, BLOOD CHEMISTRY, HEART, LIVER, BRAIN,
MYOCARDIUM, DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1173 STEP NO--UR/0390/70/033/001/0014/0017
CIRC ACCESSION NO--AP0115192
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115192

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHITE MALE RATS WERE GIVEN 20 MG CHLORPROMAZINE(I) OR CHLORACIZIN (II)-KG. I.P. BOTH I AND II DISAPPEARED FROM THE BLOOD AFTER 120 MIN. IN 30 MIN II HAD ACCUMULATED IN THE HEART AND LIVER IN CONCNS. 70-90PERCENT GREATER THAN DID I; HOWEVER, I WAS 70-90PERCENT CONCD. IN THE BRAIN THAN WAS II. THE GREATER ANTIARRHYTHMIC EFFECT OF II COMPARED TO I MAY BE DUE TO ITS GREATER ACCUMULATION IN THE HEART MUSCLE. FACILITY: LAB. PSIKHOFARMAKOL, INST. FARMAKOL. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--METABOLISM OF NEUROTROPIC AGENTS -U--
AUTHOR--AVAKUMOV, V.M. A
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHM. OBSHCHEST. 1970, 15(2), 164-174
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--METABOLISM, TRANQUILIZER, PHARMACOLOGY, BARBITURATE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3009/0145 STEP NO--UR/0063/70/015/002/0164/0174
CIRC ACCESSION NO--AP0139010
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0139010

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW INCLUDING THE METABOLISM
OF ANTIDEPRESSANTS, BARBITURATES, AND RELATED DRUGS AND THE DATA ON
PHARMACOL. ACTIVITY OF THE METABOLITES OF THESE DRUGS.

UNCLASSIFIED

USSR

UDC 576.851.71.033.3.086.3

AVAKYAN, A. A., GUDIMA, O. S., and ALIMOV, Zh. A., Institute of Epidemiology and Microbiology ~~Imeni Gamaleya~~, Academy of Medical Sciences USSR

"An Electron Microscope Study of 'Rickettsia canada' in Tissue Culture Cells"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 3-7

Abstract: In vitro cultivation of *R. canada*, a new Rickettsia species isolated in 1963 serologically related to the typhus group, and the bacterium's ultra-microscopic structure are described. One- or 2-day cultures of trypsinized chick embryo fibroblasts on Medium No 199 and 10% bovine serum incubated at 35.5°C were infected with *R. canada*. Seven days later infected cells were passaged through fresh fibroblast cultures and observed under light, fluorescent, and electron microscopes. Reproduction was confirmed by these techniques and by guinea pig tests. *R. canada* was more similar to *D. sibiricus* than other representatives of the rickettsial group with respect to dimensions, intensity of fluorescence, number of individuals per cell, and cytoplasmic distribution. It was observed in two basic forms, active and resting, similar to those described for *C. burneti*, *R. prowazeki*, and *D. sibiricus*. The active form dominated in newly infected cells while the resting form prevailed among

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USSR

AVAKYAN, A. A., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii,
No 3, 1973, pp 3-7

damaged and dead cells. Intermediate forms were also observed. Individuals could be divided into three types depending on the structure of inclusions -- amorphous-granular, striated, and crystalloid. The nature and function of such inclusions remains unknown. They are presumed to be either different stages of differentiation of the bacterium's nuclear component, or stages in development of a rickettsial phage. Further research on this species is of interest to human pathology and to studies on the evolution of the rickettsial group.

2/2

USSR

UDC: 576.8.12:576.8.094

AVAKYAN, A. A., N. F. Gamaleya Institute of Epidemiology and Microbiology

"Origin of Life on Earth According to the Evolutionary Data of Microorganisms and Their Parasitism"

Moscow, Doklady Akademii nauk SSSR, vol 206, No 5, 1972, pp 1260-1263

Abstract: In his search for a solution to the problem of the origin of life on earth, the author deems it valid to start from the known and confirmed data obtained from research on microorganisms, primarily through the electron microscope, in various stages of evolutionary development. Reference is made to an earlier work by the same author (Mater. simpoz. Evolyutsiya membrannykh struktur i yadernogo apparata u mikroorganizmov -- Processing of the Symposium on the Evolution of Membranous and Nuclear Structures in Microorganisms -- Moscow, 1967, p 3) in which he concluded that the evolution of the one-celled organism may be followed by studying its submicroscopic structure and functions of its membranes and separate membranous structures.

Data on the submicroscopic organization of each type of
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USSR

UDC: 576.8.12:576.8.094

AVAKYAN, A. A., Doklady Akademii nauk SSSR, vol 206, No 5, 1972,
pp 1260-1263

microorganism is given together with its particular type of parasitism. A chart showing the evolution of free-living and parasitic microorganisms is reproduced. Some of the work the author has done on miscellaneous viruses is described.

2/2

USSR

UDC 576.88/.89:574:001.4

AVAKYAN, A. A., Institute of Epidemiology and Microbiology imeni N. F.
~~Ganaley~~

"The Nature and the Place of Rickettsiae in the System of Microorganisms"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5,
Sep/Oct 71, pp 743-748

Abstract: In a comparative study of the submicroscopic organization and developmental cycle of bacteria, rickettsiae, and viruses, it is demonstrated that rickettsiae are neither viruses nor a category intermediate between viruses and bacteria. Rickettsiae are bacteria belonging to the class Schizomycetes, order Eubacteriales. Because of their specific morphological and biological properties, they should be regarded as a separate family: Rickettsiaceae Rocha Lima, 1936.

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USSR

UDC: 8.74

AVAKYAN, A. A., KNYAZHEV, I. I., REUTOV, O. N.

"On the Problem of Determining Optimum Periods for Preventative Maintenance of Systems With Recovery"

V sb. Osnovn. vopr. teorii i praktiki nadezhnosti (Basic Problems in the Theory and Practice of Reliability--collection of works), Moscow, "Sov. radio", 1971, pp 412-424 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V958)

Translation: Two methods of predicting failures in electronic devices are considered: on the basis of a priori and a posteriori processes of variation in the parameters of these devices. Systems of equations are proposed which relate the reliability of the devices, cost of preventative maintenance and labor expenditures to characteristics of the process of variation in parameters of the devices. Consideration is given to an algorithm for solving systems of these equations to determine optimum periods for carrying out preventative maintenance. Authors' abstract.

1/1

- 30 -

USSR

MELIYEV, A., LEBEDEV, A. D., AVAKYAN, A. A., and MAKUMOV, S. S., Uzbek Scientific Research Institute of Epidemiology, Microbiology and Infectious Diseases; Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR; and Institute of Scientific Information, Academy of Sciences USSR

"Carriers of Hemorrhagic Fever in the Uzbek SSR"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971, pp 15-18

Abstract: Twenty-six species of Ixodid ticks were discovered in regions of Uzbekistan where hemorrhagic fever had been recorded. They belonged to the genera Hyalomma, Dermacentor, Rhipicephalus, Haemaphysalis, Ixodes, Boophilus, and the Argasidae family. The seasonal fluctuation in incidence of hemorrhagic fever corresponds to the curve of seasonal population density of Hyalomma anatolicum, which predominates in most regions of the republic in foci of the disease and is, according to most investigators, the principal carrier and vector of the virus. Other widespread species include H. detritum, H. plumbeum, H. asiaticum, and D. daghestanicus. The ticks develop mainly in cowsheds and other shelters for farm animals, from which they invade human dwellings. The virus most probably exists in the system of H. plumbeum turanicum, which,

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USSR

MELIYEV, A., et al, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971, pp 15-18

living on livestock together with *H. anatolicum* and *H. detritum*, passes the virus on to them. Final solution of the question of vectors and reservoirs of the virus, and measures for fighting the infection require virological studies of the fauna of various localities by entomologists and epidemiologists.

2/2

- 29 -

A Epidemiology

ANANYAN, A. A., MAKSIYEV, S. S., and MELIYEV, A., Institute of Epidemiology and Microbiology, USSR Academy of Medical Sciences, and Uzbek Institute of Epidemiology, Microbiology, and Infectious Diseases

"ESHO-19 Virus Isolated from Ticks Collected in Hemorrhagic Fever Centers"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No. 1, 1970, pp. 29-31

Abstract: Despite extensive research in the USSR and abroad, the etiology of tropical hemorrhagic fevers is not known. H. anabolicum ticks, collected in hemorrhagic fever centers in Uzbekistan, were studied. Adult ticks were treated with ether and alcohol, washed with sterile saline, crushed in a mortar with sterile sand, and centrifuged. The supernatant fluid was used to inoculate various tissue cultures. The virus strains were identified with a set of sera by titrating the virus and neutralizing its antibodies. A portion of the culture fluid mixed with O-group human erythrocytes was used for the hemagglutination and hemadsorption reactions. The virus detected in human fibroblasts had a definite cytopathic effect, as well as in cultures of rhesus monkey kidney, human embryonic kidney, human amniotic cells, Hela, Hep-3, and Detroit-6. Virus induced complete degeneration of a monolayer of cells within 24-48

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USSR

AVAKYAN, A. A., et al., Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 1, 1970, pp 29-31

hours. No cytopathologic effects were observed in cultures of chick embryo fibroblasts, HEp-2, and L cells. When material from these tissues was transferred to susceptible tissues, no cytopathologic effects were observed, indicating the absence of latent infection. Fluid obtained from susceptible cultures had hemagglutinating and hemadsorbing properties. The isolated virus was resistant to ether and thermal inactivation. In view of these properties, the virus was classified among the intestinal group of viruses. For ultimate identification, the neutralization reaction was performed: the virus was completely neutralized by only one serum containing antibodies against ESHO-19 virus. A cross-hemmagglutination inhibition reaction yielded the same result. Cells infected with the virus contained cytoplasmic inclusions consisting of virus particles. The possibility of the cultures being contaminated with ESHO-19 virus from other sources was ruled out. The fact that the intestinal ESHO-19 virus was isolated from ticks is significant and worthy of further investigations.

2/2

1/3 012 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ON THE EVOLUTION OF PARASITISM -U-
AUTHOR--AVAKYAN, A.A. A
COUNTRY OF INFO--USSR
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970- NR 2,
PP 246-255
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PARASITOLOGY, VIRUS, BACTERIA, PROTOZOA

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REF/FRAME--1990/1374 STEP NO--UR/0216/70/000/002/0246/0255
CIRC ACCESSION NO--AP0109449
UNCLASSIFIED

2/3 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109449

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PRESENT COMMUNICATION THE AUTHOR ATTEMPTS TO DISCUSS BOTH THE EVOLUTION OF THE MICROORGANISMS AND THAT OF PARASITISM ON THE BASIS OF THE ULTRASTRUCTURAL ORGANIZATION OF PARASITIC MICROORGANISMS. DATA BEARING ON THE ATANOMY AND ONTOGENESIS OF THE PROTOZOA, THE BACTERIA AND THE VIRUSES SUGGEST THAT INTRACELLULAR PARASITISM CALLS FORTH A HIGH LEVELLED BUT NEVERTHELESS NARROW SPECIALIZATION AND CONTRARY TO SOME OPINIONS NOT FOLLOWED BY A REGRESSIVE EVOLUTION. THE HYPOTHESIS ADVOCATING THE ORIGIN OF THE VIRUSES FROM CELLS OF HIGHER ORGANISMS, BACTERIA AND PROTOZOA AS A RESULT OF A LOSS OF MANY FUNCTIONS AS WELL AS MORPHOLOGICAL SIMPLIFICATION UNDER CONDITIONS OF INTRACELLULAR PARASITISM MUST BE CONSIDERED AS FALLACIONS. THE PAPER CONTAINS A DETAILED DESCRIPTION OF THE SUBSTRUCTURE OF INTRACELLULAR PROTOZOA (SOME SPOROZOA), INTRACELLULAR PARASITIC BACTERIA AND VIRUSES. IT WAS SHOWN THAT THE PECULIARITIES OF THEIR SUBMICROSCOPICAL ORGANIZATION AND THE PECULIARITIES OF THEIR ONTOGENESIS DIFFER BASICALLY FROM CELLULAR MICROORGANISMS, THE PROTOZOA AND THE BACTERIA. BOTH THE BACTERIA AND THE VIRUSES HAVE BECOME INTRACELLULAR PARASITES ALREADY HAVING REACHED A CERTAIN ADVANCED EVOLUTIONARY LEVE. CONSEQUENTLY THEIR FURTHER INTRACELLULAR EVOLUTION TOOK ON THE COURSE DETERMINED BOTH BY THEIR GENETICAL TENDENCES AND THE PROPERTIES OF THEIR NEW ENVIRONMENT, I.E. THE HOSTS CYTOPLASM. THIS INEVITABLY LED TO AN INCREASE OF DIVERGENCY AND DID NOT CAUSE MORPHOLOGICAL UNIFICATION OF INTRACELLULAR PARASITES BY MEANS OF SIMPLIFICATION, I.E. VIA A REGRESSIVE EVOLUTION.

UNCLASSIFIED

373 012 UNCLASSIFIED PROCESSING DATE--02JCT70
CIRC ACCESSION NO--AP0109449
ABSTRACT/EXTRACT--FACILITY: N. F. GAMALEJA INSTITUTE OF EPIDEMIOLOGY AND
MICROBIOLOGY, ACADEMY OF MEDICAL SCIENCES USSR.

UNCLASSIFIED

89

Acc. Nr: AP0036831

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 1, pp 133-137

A STUDY OF THE ANTIGENIC STRUCTURE OF RICKETTSIA BURNETI,
PHASES I AND II, BY THE METHOD OF ELECTRON
MICROSCOPIC IMMUNOCYTOCHEMISTRY

A. A. Avakyan, S. M. Kulagin, R. I. Kudelina, S. A. Gulevskaya,
V. M. Kushnarev

The authors carried out investigations for localization of the antigens in Rickettsia burneti, phases I and II, with the aid of ferritin-labeled gamma-globulins obtained from the «early» and «late» sera. There were revealed differences in the character of adsorption of immune gamma-globulins pointing to superficial and deep localization of antigenic substances of phases I and II. In rickettsia of phase II there was noted the presence of two antigenic determinants which reacted with both phasic components.

D.v.

REEL/FRA
1972/548

USSR

UDC 576.6+576.895.42+576.851.71

AVAKYAN, A. A., SIDOROV, V. Ye., and CHEBANOV, S. M., Gamaleya Institute of Epidemiology and Microbiology, USSR Academy of Medical Sciences, Moscow

"Electron-Microscopic Study of Intracellular Symbiosis of Rickettsia-Like Symbionts and Argasid Ticks"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 1973, pp 707-710

Abstract: Study of the ultrastructural organization of rickettsia-like symbionts of the genus Wolbachia (obligate inhabitants of cells in tick ovaries, Malpighian tubules, and other organs) in several tick species (Alveonatus lahorensis Neumann, Argas persicus Oken, and Ornithodoros papillipes Birulia) showed that the developmental cycle of the symbionts in all three tick species consists of three stages: (a) reproduction, (b) conservation, and (c) activation. The size of the symbiont population is regulated by the host in all stages of their combined existence. The number of symbionts increases after the ticks feed, but the former pass through the initial stage (binary fission) in only a comparatively few cells that contain cavities in which new parasite colonies can form; the bulk of the population remains in the conservation stage. Fasting the
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USSR

AVAKYAN, A. A., et al., Doklady Akademii Nauk SSSR, Vol 211, No 3, 1973,
pp 707-710

ticks results in a steady decrease in the number of symbionts, as shown by the appearance and subsequent increase in colonies with degenerating symbionts. Thus, the numbers of the symbionts-mutualists remain under the host's control and never reach the level that might threaten its life.

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USSR

UDC 621.221.003.1:551.48

AVAKYAN, A. B., SHARAPOV, V. A., SHAPIRO, L. N.

"Requirements of Water Conservancy Branches for Flash and Level Modes and Recommendations with Respect to Improving the All-Around Use of Reservoirs"

Tr. koordinats. soveshchaniy po gidrotekhn (Works of the Coordinating Conferences on Hydroengineering), No 59, 1970 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D57)

Translation: The generalized requirements of each branch with respect to level conditions of reservoir operation and necessary flashes from it are listed in detail for the basic branches of water conservancy (power engineering, agriculture, water transportation and logging), the fishing industry, water supplies and sewage). The requirements of other branches are briefly described. The contradictory nature of the requirements of the various branches is noted. This leads to incomplete satisfaction of them. Optimization of the operating conditions of the hydroengineering complex is complicated by the absence of a method of estimating the national economic effectiveness of various conditions of operation of it and absence of a number of branch procedures. However, this does not exclude the possibility of development and implementation of a number of measures to improve the all-around use of water resources. A list of measures is proposed realization of which must be provided for in projected plans and national economic plans simultaneously with the construction of the

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USSR

AVAKYAN, A. V., et al., Tr. koordinats. soveshchaniy po gidrotekhn., No 59, 1970.

hydroengineering complex. Periodic investigation and reconfirmation of the basic use rules for water resources of reservoirs and also conversion to compilation of analogous rules for the hydroengineering complex cascade are considered expedient. A list of most important scientific research problems connected with improving the effectiveness of using hydroengineering complexes is presented. The bibliography has 13 entries.

2/2

- 60 -

USSR

UDC 576.851.553.077.3:576.8.073.4

AVAKYAN, A. O., Institute of Epidemiology and Hygiene imeni N. B. Akopyan,
Ministry of Health Armenian SSR

"Detection of Cl. Botulinum in Soil by the Fluorescent Serological Method"

Moscow, Laboratornoye Delo, No 1, 1973, pp 30-31

Abstract: Soil samples were collected in Armenia's three regions known to be contaminated with Cl. botulinum. The samples were mixed with sterile water, and 10 ml of each extract were poured on Kitt-Tarozzi medium. The mixtures were heated to 80°C for 30 min, kept at 37°C for 4-5 days, and centrifuged. The sediments were used to prepare smears which were stained with types A, B, C, and E luminescent antibotulin sera by Kuhn's direct method. Phase contrast microscopy revealed thick rods, some with spores at one end (rocket formation) in all 48 samples. In luminescent microscopy, rods with specific bright green luminescence of various intensity were observed in 30 samples. Neutralization reaction performed with polyvalent (types A, B, C, and E) serum on the sediments of these 30 samples yielded positive result in 22 samples: 17 contained type B, four type A, and one type A&B botulin. The remaining 8 samples evidently contained nontoxic strains of Cl. botulinum or Cl. sporogenes. It is concluded that the fluorescent serological method is useful as a quick

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USSR

AVAKYAN, A. O., Laboratornoye Delo, No 1, 1973, pp 30-31

orientation test. However, the neutralization reaction in white mice must be performed before an ultimate diagnosis of the presence of Cl. botulinum can be established.

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USSR

AVAKYAN, B., Doctor of Biological Sciences Deputy Chairman, Armenian Division
of the All-Union Microbiological Society

"Microbiology and Scientific and Technical Progress"

Yerevan, Kommunist, 30 Jul 71, p 2

Abstract: Microbiology today plays a large part in resolving many problems in both science and practical work, in such areas as industry, agriculture and medicine. The Fourth Congress of the All-Union Microbiological Society, held recently in Minsk, considered these matters, with particular attention to the livestock raising sector. In Armenia, where the next congress will be held in four years, microbiology is developing at a rapid rate. The bacterial fertilizer plant in Yerevan is now operating, construction is being finished on the biochemical drug plant in Abovyan, and work is underway on one of the USSR's largest plants for the production of amino acids and lysine in Charentsavan. Last year a branch of the All Union Scientific Research Institute of Genetics and Selection of Industrial Microorganisms was organized at the Charentsavan lysine plant, and they now work together. Bioengineering is an area crucial to further progress in the microbiological industry. Bioengineering involves the study of biosynthesis, in order to develop methods of direct cultivation

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USSR

AVAKYAN, B., *Kommunist*, 30 Jul 71, p 2

and fermentation of microorganisms. Other tasks of bioengineering involve layout of plant equipment, sterilization, etc. The Armenian microbiology industry also faces the problem of the work force, particularly retraining workers in bioengineering. If these matters are taken care of, the next congress of the All-Union Microbiological Society will find an appropriate meeting place in Armenia.

2/2

- 15 -

Phytology.

USSR

UDC 557.391:612.014.44

AVAKYAN, G. M., and AVAKYAN, Ts.M., Yerevan Institute of Physics, Yerevan

"Radiochemiluminescence in a Nitrogen Atmosphere"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 25, No 8, Aug 72, pp 9-13

Abstract: Irradiation of roots of 4-day old pea sprouts with X-rays in a dose of 5000 r in N_2 at 1.2 atm caused an intensive increase in the luminescence of the roots above the level of spontaneous emission. Repetition of irradiation with the same dose did not result in a weakening of the effect -- consequently, the effect was due mainly to phosphorescence. However, chemiluminescence reactions were also involved to a minor extent. This followed from the fact that on treatment of the roots with L-cysteine, the intensity of luminescence upon irradiation with X-rays in a dose of 3000 r decreased with increasing concentrations of cysteine. Reactions with O that formed by radiolysis of water or with HNO_3 and HNO_2 that formed from N_2 may be assumed. Cysteine inhibited the oxidation reactions in question.

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USSR

ALIKHANYAN, A. I., ASATIANI, T. L., AVAKYAN, K. M., ZHIROVA, L. A.,
IVANOV, V. A., KRISHCHYAN, V. M., MATEVOSYAN, E. M.

"Measurement Accuracy of Charged Particle Pulses in Wide-Gap
Spark Chambers"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61,
No 4(10), Oct 71, pp 1273-1275

Abstract: The purpose of this article is to show how the accuracy of these pulse measurements can be improved. Corrections which must be made to achieve this accuracy are based on results obtained in an earlier paper (A. I. Alikhanyan, et al, 12-ya Mezhdunarodnaya konferentsiya po fizike vysokikh energiy -- Twelfth International Conference on High-Energy Physics -- Dubna, 1964, 2, Atomizdat, 1966, p 303) and were derived from new equipment with better parameters. These involved a reduction in the total delay time of up to 230 ns for applying the high-voltage pulses to the chamber, a reduction of up to 2 ± 0.5 ns in the rise time of the high-voltage pulse, and a high degree of electric field uniformity at the edges of the chamber through the use of distributed resistances and capacitances. Tables of the characteristics of various types of chamber are given. Analysis of the errors shows that
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USSR

ALIKHANYAN, A. I. et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 4(10), Oct 71, pp 1273-1275

the measurement accuracy of the new equipment is limited by the optical distortion. A table of corrections for these distortions is provided. Gratitude is expressed to V. N. Semenyushkin, N. I. Novikov, A. F. Pisarev, Yu. V. Kulikov, L. N. Strunov, and I. N. Golutvin for performing the required experiments in the OIYaI (Joint Institute of Nuclear Research).. The authors are associated with the Yerevan Physical Institute.

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USSR


AVAKYAN, K. M., ALIKHANYAN, A. I., GARIBYAN, G. M., LORIKYAN, M. P., SHIKHLYAROV,
K. K.

"Detection of Transient X-Radiation by Means of a Streamer Chamber"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Fizika, Vol 5, No 4, 1970, pp
267-274

Abstract: A new method is proposed for detecting x-ray transient radiation by means of a streamer chamber with an admixture of Xe. Use of the streamer chamber provides for separate observation of the radiation as well as of the particle, and the presence of Xe provides great efficiency in the detection of photons. It is shown that the average number of transient quanta increases linearly in the electron-energy interval from 1.2 to 2.46 Gev. With the use of foam plastic instead of a layered medium, the efficiency of electron detection with respect to transient radiation equalled 86%.

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USSR

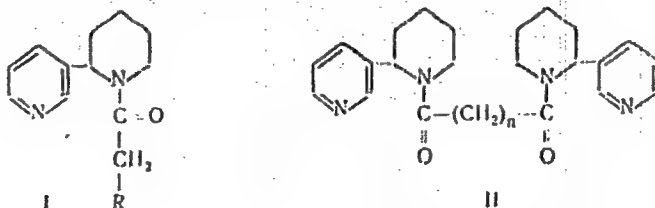
UDC 547.821+547.91

ARUTYUNYAN, L. S., TSATINYAN, A. S., AVAKYAN, O. M., KARAGEZYAN, S. G.,
SARAFYAN, V. G., and MNATSAKANYAN, V. A., Institute of Fine Organic Chemistry
imeni A. L. Mndzhoyana, Academy of Sciences Armenian SSR (Yerevan)

"Modification of Alkaloid Structures. VI. Some N-substituted Anabazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 78-80

Abstract: Alkylhydroxyphenyl groups were substituted at the 2-, 3-, and 4-
position of structures I, II, III, and IV.

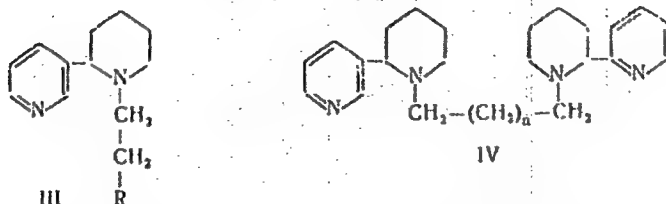


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- 5 -

USSR

ARUTYUNYAN, L. S., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 78-80



The products were separated and purified by thin-layer chromatography, and identified by their IR spectra. A table presents the values of $[\alpha]_D^{22}$, R_f , boiling point, and percent yield for all the compounds.

Nitrogen Compounds

1

USSR

UDC 541.69+542.91+547.233

MNDZHOYAN, A. L., (DECEASED), MARKARYAN, E. A., BALAYAN, R. S., AVAKYAN, O. M.,
and TSATINYAN, A. S., Institute of Fine Organic Chemistry imeni A. L.
Mndzoyan, Academy of Sciences Armenian SSR, (Yerevan)

"Arylalkylamine Derivatives. III. Synthesis and Pharmacological Properties
of N-(3,3-Diarylpropyl)-N-Aryl(diphenyl)alkylamines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vo, 24, No 9, 1971, pp 791-797

Abstract: Condensation of veratrole with methyl ester of cinnamic acid
in nitrobenzene and in presence of aluminum chloride gave the methyl ester
of 3-(3',4'-dimethoxyphenyl)-3-phenylpropionic acid, which could easily
be saponified to the free acid, and finally converted to acyl chloride by
treatment with thionyl chloride. Condensation of this acyl chloride with
homoveratrylamine, phenylisopropylamine and diphenylaminobutane gave respective
amides, for example homoveratrylamide of 3-(3',4'-dimethoxyphenyl)-3-
phenylpropionic acid, which could be reduced to the respective secondary
amines using LiAlH_4 in ether. Tested in an assay on rat's spermiduct these
amines showed sympatolytic and some of them even adrenalytic activity.

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USSR

UDC 615.711.7

AVAKYAN, O. M., POGOSYAN, A. V., and KALTRIKYAN, A. A., Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR

"The Search for New Sympatholytics and Adrenolytics"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 6, June 70, pp 14-20

Abstract: In their quest for sympatholytic and adrenolytic compounds, the authors studied 694 synthetic compounds, with many divergent structures. Among the many groups of substances and their derivatives which were tested on animals in the laboratory, amidine and guanidine derivatives were found to possess the desired properties. Adrenolytic properties were found in the derivatives of p-alkoxybenzyl-1,4-benzodioxane-w-ile-methylamine and 2(N-p-alkoxybenzylpiperazinomethyl)-1,4-benzodioxane. Sympatholytic properties were found in the derivatives of N-alkyl-N-(4-alkoxybenzyl)-aminoalkylguanidine and N-(r-alkoxybenzylmercaptoalkyl) guanidine. Study of the mechanism of their action will promote understanding of the mechanism of the transmission of stimulation from nerve endings to the receptors.

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1/2 020 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--POTENTIATION OF VAS DEFERENS CONTRACTIONS WITH CATECHOL AMINES -U-
AUTHOR--(02)-AVAKYAN, O.M., POGOSYAN, A.V. *A*
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKO. (MOSCOW) 1970, 33(1), 25-8
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CATECHOLAMINE, REPRODUCTIVE SYSTEM, ADRENALINE, NORADRENALIN,
GUINEA PIG, RESERPINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/1175 STEP NO--UK/0390/70/033/001/0025/0028
CIRC ACCESSION NO--AP0115194
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADRENALINE AND NORADRENALINE AT 8 MUG-ML SIGNIFICANTLY INCREASED CONTRACTION OF ISOLATED GUINEA PIG VAS DEFERENS DURING ELEC. STIMULATION OF THE HYPOGASTRIC NERVE. AFTER REMOVAL OF GANGLIAR FORMATIONS, THE CATECHOL AMINES CONTINUED TO INCREASE VAS DEFERENS RESPONSES BY MEANS OF TRANSMURAL STIMULATION. THIS EFFECT WAS MORE SIGNIFICANT AFTER RESERPINE (0.5 MG-KG ADMINISTERED I.P 48 HR BEFORE TREATMENT AND 1 MG-KG ADMINISTERED 24 HR BEFORE TREATMENT) INDUCED DEPLETION OF NORADRENALINE RESERVES. FACILITY: LAB. ADRENERG. MERKHAIZMOV, INST. TONKOI ORG. KHIM, EREVAN, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ENERGY DISTRIBUTION OF ELECTRONS FREED DURING COLLISIONS OF NE
PRIME3 POSITIVE WITH ARGON ATOMS -U-
AUTHOR-(03)-OGURTSOV, G.N., FLAKS, I.P., AVAKYAN, S.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. TEKH. FIZ. 1970, 40(5), 1133-5
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRON SPECTRUM, ION BOMBARDMENT, NEON, ARGON, ELECTRON
TRANSITION, EXCITATION CROSS SECTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/0934 STEP NO--UR/0057/70/040/005/1133/0035
CIRC ACCESSION NO--AP0131520
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131520

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. INVESTIGATIONS WERE CARRIED OUT ON THE ENERGY SPECTRUM OF ELECTRONS FREED DURING COLLISIONS OF NE PRIME3 POSITIVE WITH AR ATOMS. THE ENERGIES OF NE PRIME3 POSITIVE WERE 21 AND 45 KEV AND THE ELECTRON ENERGY WAS 5-16 EV. THE ANGLE BETWEEN THE ELECTRON PATH AND THE INCIDENT BEAM WAS 54.5 DEGREES. THE ELECTRON FORMATION CROSS SECTION CORRESPONDING TO THE CONTINUOUS PART OF THE SPECTRUM DEPENDS LITTLE ON THE RELATIVE VELOCITY OF MOTION. THE DISCRETE LINES OF THE OBSD. SPECTRUM CORRESPOND TO THE LINES DUE TO AUTOIONIZATION TRANSITIONS IN AR ATOMS AND IONS. CROSS SECTIONS CORRESPONDING TO THE CONTINUOUS PART OF THE SPECTRUM FOR COLLISIONS OF AR ATOMS WITH NE PRIME POSITIVE AND NE PRIME3 POSITIVE WERE COMPARED. IN THE LATTER CASE, THERE IS A SHARP RISE OF CROSS SECTION WITH DECREASE OF ELECTRON ENERGY. THE PROCESSES OF EXOTHERMIC CAPTURE WITH IONIZATION INFLUENCE THE MAGNITUDE AND CHARACTER OF THE DEPENDENCES OF THE CROSS SECTION ON THE ENERGY, E_{SUBE} , OF THE ELECTRONS. ALSO, THE ENERGY DISTRIBUTION OF ELECTRONS FREED IN THE PROCESS IS CONTINUOUS TO VERY SMALL VALUES OF E_{SUBE} . FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 577.3

AVAKYAN, Ts. M., ADZHYAN, N. S., and STEPANYAN, L. G., Laboratory of Radiation Biophysics of the State Committee for Use of Atomic Energy, Yerevan Physics Institute

"Abnormal Luminescence of Cells Induced by X-Rays in an Atmosphere of Oxygen at High Pressure"

Yerevan, Biologicheskii Zhurnal Armenii, No 6, 1971, pp 33-38

Abstract: Chemiluminescence of 4- to 5-day-old x-ray irradiated (500 r to 5 kr) pea roots was studied after exposure to nitrogen, oxygen, and the antioxidants cysteine and cystophos (monosodium β -aminothiophosphate, $M=179.11$). At a pressure of 0.2 atm of nitrogen, the level of luminescence dropped sharply and remained low even after further increases in nitrogen pressure. At pressure of 0.2 to 9 atm of oxygen, the level of luminescence increased, oxygen participated vigorously in the reaction, and the process of oxidation intensified. However, the rate of the reaction slowed when oxygen pressure was increased. Cysteine and cystophos are known to inhibit chemiluminescence sharply and decrease its intensity. But after the pea roots were treated with these agents, chemiluminescence increased after exposure to 2 kr + O_2 and the intensity of chemiluminescence slowly increased after a pressure of 9 atm.

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Molecular Biology

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AVAKYAN, Ts. M.

"The Second Scientific Session Devoted to Problems of Molecular Biology and Biophysics"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 6, Jun 70, pp 114-115

Abstract: On the initiative of the Scientific Council for Problems of Molecular Biology and Biophysics of the Academy of Sciences Armenian SSR, the Second Republic Scientific Session devoted to Molecular Biology and Biophysics was held in Yerevan on 12-14 March 1970. About 100 specialists participated in the work of the session, coming from various institutes of the Academy, the Ministry of Health, Yerevan Physics Institute of the State Committee for the Use of Atomic Energy, Ministry of Agriculture Armenian SSR, Yerevan State University, and Yerevan Pedagogical Institute. Scientists from Moscow and Leningrad were also invited. Thirty-six reports on various aspects of molecular biology and biophysics were presented during the three-day session. Prof. Ter-Karapetyan expressed a desire for the use of electronic paramagnetic resonance spectra and other modern methods, which are not being used by biologists of Armenia. The session was opened by reports on the investigation of the structure of biological macromolecules. V. Aslanyan and coauthors introduced data on the

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AVAKYAN, Ts. M., Biologicheskii Zhurnal Armenii, Vol 23, No 6, Jun 70, pp 114-115

mechanisms of interaction and thermostability of DNA, and also new methods of studying the relaxation properties of macromolecules. The report on thermodynamic aspects of oscillations of conjugated proteins was introduced by S. Oganessian. Possible auto oscillations of macromolecules of conjugated proteins were discussed and a model of one physicochemical mechanism of oscillations of biological macromolecules was introduced. The reports on molecular biology were most diversified. The report "The Kinetic Parameters of Cholinesterases of Conjugated Proteins" (T. Zaminyan, Kh. Stamboltsyan) introduced data proving the allosteric regulation of myosin cholinesterases. Another report (V. Dolgo-Saburov, A. Panyukov) discussed new molecular forms of cholinesterases. Detailed report was presented by G. Panosyan and coauthors concerning the specificity of histones. Experimental results permitted the conclusion that regulation on the transcription level by a triad of histones -- RNA -- non-histone protein. The report by Yu. Magakyan and coworkers concerned problems of developmental biology. The experimental material presented at this conference is a continuation of basic work of the group investigating the molecular aspects of development of forms. Two reports touched on cell biophysics. L. Mikayelyan and S. Martirosov introduces work on electrogenic active transport, resulting in a general leveling of

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AVAKYAN, Ts. M., Biologicheskiy Zhurnal Armenii, Vol 23, No 6, Jun 70, pp 114-115

the rest potential (for muscle fibers) and taking into account active ions transport. A subsequent report by K. Dzhandzhugazyan discussed K^+ , Na^+ , Mg^{2+} , and the activating ATP-ase in early embryogenesis. The symposium also heard reports on free-radical processes in biological systems. Ts. Avakyan and coauthors, and A. Zakaryan and coauthors, presented reports on superweak bioluminescence for obtaining information under the affluence of penetrating radiation and with mutual interaction of carcinogenic substances with some biopolymers. The discourse of V. G. Pasoyan was devoted to the investigation, by EPR method, of the nature of the paramagnetic centers of L-tyrosine under the influence of gamma-rays. The session also heard several discourses on molecular genetics. The session also heard several discourses on molecular genetics. M. Oganessian and coauthors treated the problem of biochemical analysis of the lac-operon in mutants based on gene-suppressors of E. coli. I. Karabekov and coauthors introduced a report concerning new spontaneous mutations and investigation of the morphological parameters in bacteriophage T5h. Genetic study of the attenuated actinophage was discussed by N. Mkrtumyan. E. Piruzyan lectured on the fine genetic structure of genes 34 and 36 in bacteriophage T4B.

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Phytology

USSR

UDC 557.391:612.014.44

AVAKYAN, G. M., and AVAKYAN, Ts.M., Yerevan Institute of Physics, Yerevan

"Radiochemiluminescence in a Nitrogen Atmosphere"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 25, No 8, Aug 72, pp 9-13

Abstract: Irradiation of roots of 4-day old pea sprouts with X-rays in a dose of 5000 r in N_2 at 1.2 atm caused an intensive increase in the luminescence of the roots above the level of spontaneous emission. Repetition of irradiation with the same dose did not result in a weakening of the effect -- consequently, the effect was due mainly to phosphorescence. However, chemiluminescence reactions were also involved to a minor extent. This followed from the fact that on treatment of the roots with L-cysteine, the intensity of luminescence upon irradiation with X-rays in a dose of 3000 r decreased with increasing concentrations of cysteine. Reactions with O that formed by radiolysis of water or with HNO_3 and HNO_2 that formed from N_2 may be assumed. Cysteine inhibited the oxidation reactions in question.

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USSR

UDC 678.01.535

AKOPYAN, S. G. and AVAKYAN, Yu. V., Yerevan Department of the VNIIP (All-Union Scientific Research Institute of the Canning Industry)

"Determination of the Temperature of a Specimen During Pulsed Irradiation by Sunlight"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Seriya Tekhnicheskikh Nauk, Vol 25, No 5, 1972, pp 43-46

Abstract: Polymer materials being tested by an accelerated method for the action of sunlight are irradiated by concentrated sunlight. Since uninterrupted exposure causes excess heat, cooling is accomplished by pulsed irradiation. A formula is developed for analytic determination of the temperature attained by this method. 1 figure. 4 references.

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UDC 621.381.2

AVAK'YANTS, G. M., Correspondent Member of the Armenian SSR Academy of Sciences, Institute of Radio Physics and Electronics of the Armenian SSR Academy of Sciences

"Active MOS Units and a Bipolar Transistor"

Yerevan, Doklady Akademii Nauk Armyanskoy SSR, Vol 56, No 5, 1973, pp 284-289

Abstract: The structure described involves a semiconductor with a resistor connected on the discharge side, distinguished by the following characteristics: 1) the gate is connected to the discharge rather than to the source; 2) the gate is connected to the source through the resistor as well as through a voltage source; 3) the voltage supplied from the voltage source to the gate is not negative, but positive.

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AVAK'YANTS, G. M., Yerevan, Doklady Akademii Nauk Armyanskoy SSR, Vol 56, No 5, 1973, pp 284 - 289

The circuit is noteworthy because the breakdown voltage can be made largely independent of the physical, geometric, and technological parameters of the MOS structure.

This principle can be extended to a bipolar transistor, connecting the resistance to the collector circuit. In another article (in press) in this same journal, the author describes an active unit consisting of a bipolar transistor in a diode connection, the base of which is shorted with the emitter through a tunnel diode to give the latter its usual N-shaped voltage-current characteristic with forward bias on the emitter. It is shown that these systems can be given any characteristic from pure N to pure S and that the same is true if the tunnel diode is replaced by any other element with an N-characteristic. In particular, a unit with an N characteristic can be made on the basis of two MOS transistors, and therefore the tunnel diode can be replaced with two MOS transistors in combination with a bipolar transistor to produce a structure of similar differential resistance.

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